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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,544	02/27/2002	Ryo Ishibashi	500.41255X00	5575

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ANTONELLI, TERRY, STOUT & KRAUS, LLP  
1300 NORTH SEVENTEENTH STREET  
SUITE 1800  
ARLINGTON, VA 22209-9889

EXAMINER

YEE, DEBORAH

ART UNIT PAPER NUMBER

1742

DATE MAILED: 09/18/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/083,544

Applicant(s)

ISHIBASHI ET AL.

Examiner

Deborah Yee

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Election/Restrictions***

Restriction of paper no. 5 dated May 2, 2003 has been withdrawn in view of applicant's traversal in paper no.6.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over European patent 747497 (submitted by applicant in International Search report).

EP'497 in claim 4 on pages 20 and 21 discloses an ultra-fine grain sized austenitic steel alloy having an average grain size of not larger than 1 micron which closely meets the recited claims 1-19; and is produced by making a powder having a crystal grain size smaller than 15nm by mechanically grinding or alloying a powder at a temperature not higher than 100C for 30 to 100 hours using an attriter or a ball mill, said powder being an atomized powder of said steel composition and then subjected to consolidating by hot solidifying with hot isostatic sintering or hot extruding working at 700 to 1050C and then hot working at 700 to 1050C which encompasses applicant's

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temperature ranges of 700- 900C. Moreover, note specific examples in Table 2 on page 9 and Table 5 on page 10 wherein preferred heating temperatures are 850 and 900 to achieve 20 to 85 nm grain size, and is within applicant's temperature range of 700 to 900C.

The prior art process, however, mechanically grinds powder at higher than 100C for 30 to 100 hours whereas the present invention grinds at 100C or lower for 30 hours or more as recited by claim 7 and also can be further subjected to heating at 400 to 650C for 0.5 to 6 hours or suffered from a rise of temperature from 400 to 650C for a period of 0.5 to 6 hours as recited in claim 9. Since applicant has not demonstrated criticality of the milling temperature range (e.g. comparative test data), then it would seem that a powder milled at 100C vs slightly less than 100C would depict mere difference in the degree of temperature without any attendant unexpected results. Moreover as evident by claim 9, applicant desires to further heat milled powder at higher temperature which is already preformed by the prior art in the earlier stage. Applicant will need to show why heating at less than 100C and then heating at 400 to 650C step vs. heating at high temperature in one step is somehow critical and productive of new and unexpected results.

Also even though EP'497 does not teach a steel alloy containing carbonitrides as recited by the claims, such carbonitrides would be an expected because the composition and process steps are closely met, and in absence of proof to the contrary, see MPEP2112.01, In re Best, 195USPQ430.

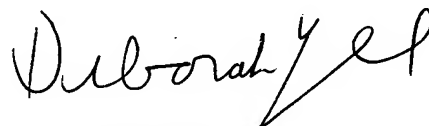
Furthermore, specific examples in Table 1 on page 8 of EP'497 when calculated satisfy the equation recited in claims 6 and 19. Although the equation is not taught by prior art, such would not be a patentable difference since it has been held that there is no invention involved in the discovery of a general formula if it covers a composition described in the prior art, see *In re Cooper et al.*, 57USPQ117.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deborah Yee whose telephone number is 703-308-1102. The examiner can normally be reached on Monday-Friday from 6:30 to 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 703-308-1146. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

dy

  
DEBORAH YEE  
PRIMARY EXAMINER